




# Report of the Commercial Space Committee

*NASA Advisory Council*



NASA Headquarters  
February 18, 2010

# Commercial Committee Members

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- ▶ **Bretton Alexander, Chair**
  - ▶ President of the Commercial Spaceflight Federation
- ▶ **Maj Gen Donald Hard (USAF, Ret.)**
  - ▶ Independent consultant to government and industry
- ▶ **Bernard A. Harris, Jr., (M.D.)**
  - ▶ CEO of Vesalius Ventures, former NASA astronaut, and former SPACEHAB executive
- ▶ **Lon Levin**
  - ▶ Co-founder of XM Satellite Radio and other satellite businesses
- ▶ **J. Michael Lounge**
  - ▶ Former NASA astronaut and former Boeing executive
- ▶ **Patti Grace Smith**
  - ▶ Former FAA Associate Administrator for Commercial Space Transportation and consultant/advisor to space and aerospace companies
- ▶ **Wilbur C. Trafton**
  - ▶ Former NASA Associate Administrator for Space Flight and executive at ILS and Kistler Aerospace
- ▶ ***John Emond, Executive Secretary***
  - ▶ *NASA Innovative Partnerships Program Office*

# Work Plan (Draft)

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1. Review and advise on how best to optimize NASA's organizational elements and address cultural issues to effectively encourage and promote the development of a commercial space industry.
2. Review NASA's strategy and plans for stimulating a commercial space industry, and provide advice on effective and appropriate methods for NASA to stimulate, encourage and partner with commercial space. What is the logical progression for developing a commercial capability for transportation to ISS and LEO?
3. Review and advise on NASA's strategy for partnering and cooperating with other federal agencies on commercial space.
4. Provide advice on how NASA should define "commercial space" to effectively implement "commercial space" programs and policies.

# Meeting Schedule

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- ▶ First meeting held Tuesday, February 16, 2010
- ▶ Held at NASA Headquarters in Washington, DC
- ▶ Attendance
  - ▶ 6 of 7 committee members present
  - ▶ Approximately 25 members of the public and NASA attended
- ▶ Welcome by Deputy Administrator Lori Garver, as well as:
  - ▶ Bill Gerstenmeier, Associate Administrator for Space Operations
  - ▶ Doug Cooke, Associate Administrator for Exploration Systems
  - ▶ Doug Comstock, Director of the Innovative Partnerships Program Office
- ▶ Next Meetings:
  - ▶ Tuesday, March 30 in Washington, DC
  - ▶ Monday, April 26 in Houston, TX

# Presentations to the Committee

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- ▶ Overview of NASA's Commercial Space Efforts (Doug Comstock, Director IPP)
  - ▶ What is commercial space?
  - ▶ Seed Fund Partnerships
  - ▶ Licensing
  - ▶ Service Purchases
  - ▶ Facilitated Access to the Space Environment for Technology Development and Training (FAST)
  - ▶ Commercial Reusable Suborbital Research (CRuSR) Program
  - ▶ Centennial Challenges
  - ▶ Commercial Reusable Launch Vehicle Technology Roadmap Study
  - ▶ Commercial and Government Responsive Access to Space Technology Exchange (CRASTE)
- ▶ Commercial Reusable Suborbital Research (CRuSR) and a Potential NASA Strategy for achieving Low-Cost and Reliable Access to Space (LCRATS) (Charles Miller, IPP)
  - ▶ Historical attempts at achieving low-cost reliable access to space
  - ▶ Historical lessons on development of the airplane and establishment of NACA
  - ▶ NACA approach for low-cost reliable access to space
  - ▶ Commercial and Government Responsive Access to Space Technology Exchange (CRASTE)
  - ▶ Commercial Reusable Launch Vehicle Technology Roadmap Study
- ▶ 5▶ Commercial Reusable Suborbital Research (CRuSR) program and activities

# Presentations to the Committee (cont.)

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- ▶ **Commercial Cargo and Crew Overview (Geoff Yoder, ESMD)**
  - ▶ Commercial Crew and Cargo Program
  - ▶ Commercial Orbital Transportation Services (COTS) Program
  - ▶ Commercial Crew Development (CCDev) Program
  - ▶ Integrated Approach for Commercial Crew Services
  - ▶ Defining Human Rating Requirements for Commercial Crew
  
- ▶ **International Space Station Status (Sam Scimemi, SOMD)**
  - ▶ ISS Today
  - ▶ ISS Cargo and Crew Requirements
  - ▶ Current Transportation Arrangements
  - ▶ COTS and Commercial Resupply Services (CRS) Flights
  - ▶ ISS Commercial Potential

# Committee Discussion

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- ▶ Priority on commercial crew and cargo programs given recent budget announcement
- ▶ Defining “commercial space”
  - ▶ Attributes of commercial versus traditional government contracting
- ▶ Lessons learned from previous commercial space efforts
  - ▶ Examples included SPACEHAB and Evolved Expendable Launch Vehicle (EELV)
- ▶ Next Steps
  - ▶ Meeting schedule
  - ▶ Briefings/information desired
  - ▶ Findings / Observations / Recommendations

## Committee Discussion (cont.)

Commercial Attribute comparison and range: from traditional government ownership and control with unique requirements and custom product, to commercial model of company owned and designed, set price, pay for performance

Attribute	Traditional Govt		Pure Commercial	Space Example
Product type	One-of-a-kind <i>"bespoke"</i>	↔ <i>"tailored"</i>	Commodity <i>"off-the-rack"</i>	gps receivers, Comsats
Customers	NASA only	↔	Ability to serve multiple	
Design	NASA-specified	↔	Company-specified	comsats
Owner/Operator	NASA	↔	Company	Shuttle vs EELV  Delivery on orbit
Contracting	Cost-plus	↔	Firm-fixed price, pay-for-performance	Comsats
Price	based on cost-plus	↔	Market-based	
Financing	100% NASA	↔	Private financing/ Customer payments	
Risk (perf, financial)	NASA	↔	Company	consumer gps